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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,782	01/25/2001	Juergen Lauterjung	4100-0120P	8137

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EXAMINER

CHANG, EDITH M

ART UNIT	PAPER NUMBER
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2634

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DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/701,782	Applicant(s) LAUTERJUNG ET AL.	
	Examiner Edith M Chang	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Add BRIEF DESCRIPTION OF THE DRAWINGS. In this section list all figures and its short descriptions.

*Claim Objections*

3. Claim 4 is objected to because of the following informalities: the term "the decision device" lacks antecedence. It suggests changing it to "a decision device".

Appropriate correction is required.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peeters et al. (US 6628738 B1) in view of Shirakata et al. (US 6169751 B1).

Regarding **claim 1**, Peeters et al. discloses a process for processing OFDM-signals (Fig.1) characterized in that: the channel correction values or the confidence values (Fig.1 SNR<sub>i</sub> are the values) are determined from the pilots (Abstract wherein the pilot carriers are used for determination); weighting factors are derived from the values (Fig.1 WEIGHT, column 7 lines 34-37, A<sub>i</sub> are derived from the SNR<sub>i</sub>); the I/Q values of each individual carrier or OFDM-signal are weighted such that carriers received at a low level are weighted low and carriers received at a high level are weighted high (column 12 lines 25-30, wherein the claim 1 states the A<sub>i</sub> is linearly proportional to the value SNR<sub>i</sub>:

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so when the SNR<sub>i</sub> is high which is the carriers received/the signal level at a high level, and is weighted high since the A<sub>i</sub> is high; and vice versa that the low level weighted low), and the weighted I/Q values are added and divided by the sum of all the weighting factors (FIG. 1 S is the adder, DIV divides the output of the adder with the normalization factor B, column 7 lines 49-55). Even the I/Q values provided in the received OFDM signal, however does not explicitly specify the I/Q values of received OFDM signals. Shirakata et al. teaches the I/Q values of each individual carrier (Fig. 1 114), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the quadrature detector taught by Shirakata et al. in Peeters et al.'s multi-carrier transmission system (wherein the OFDM signals received via tuner, quadrature detector, A/D, etc. before the FFT). As both Peeters et al.'s and Shirakata et al.'s system for synchronization purposes (column 1 lines 10-15 '897, column 1 lines 5-10 '751), Shirakata et al.'s apparatus show the means for creating I/Q values, the values are provided to FFT in Peeter et al.'s receiver. The combined receiver explicitly show the I/Q means to generate the I/Q values used in the Peeter et al.'s system to provide the OFDM signals to the receiver for synchronization purposes.

Regarding **claim 2**, Peeters et al. discloses the I/Q-values at the demodulator (Fig. 1 the output of the FFT/ROTOR) are fed to a time synchronization device (Fig. 1 ARR).

Regarding **claim 3**, Peeters et al. discloses the I/Q values of each individual carrier of the OFDM-signal are weighted as a function of the channel correction values (column 12 lines 25-30, wherein the claim 1 states the A<sub>i</sub> is linearly proportional to the

value  $SNR_i$ , wherein  $SNR_i$  are the correction values, linearly proportional is the function).

Regarding **claim 4**, Peeter et al. discloses the data words available downstream of the decision device (Fig. 1 FIL/CHANNEL) are reduced to their original I/Q-values (Fig. 1 signals are feedback to FFT/ROTOR) and then weighted with the confidence values (Fig. 1 CHANNEL, outputs of CHANNEL to the ROTOR are confidence values).


### *Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang  
June 24, 2004

  
CHIEH M. FAN  
PRIMARY EXAMINER